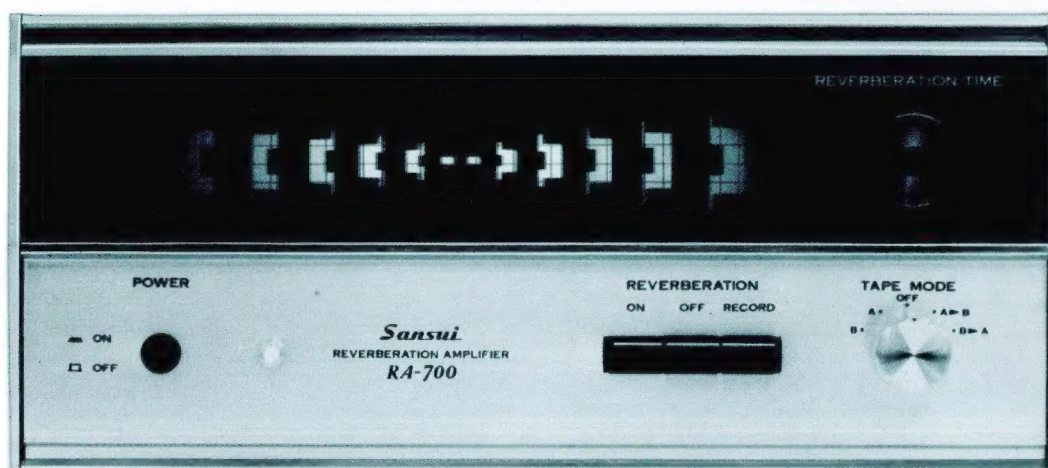


OPERATING INSTRUCTIONS

SOLID-STATE REVERBERATION AMPLIFIER

SANSUI RA-700



Sansui

SANSUI ELECTRIC CO., LTD.

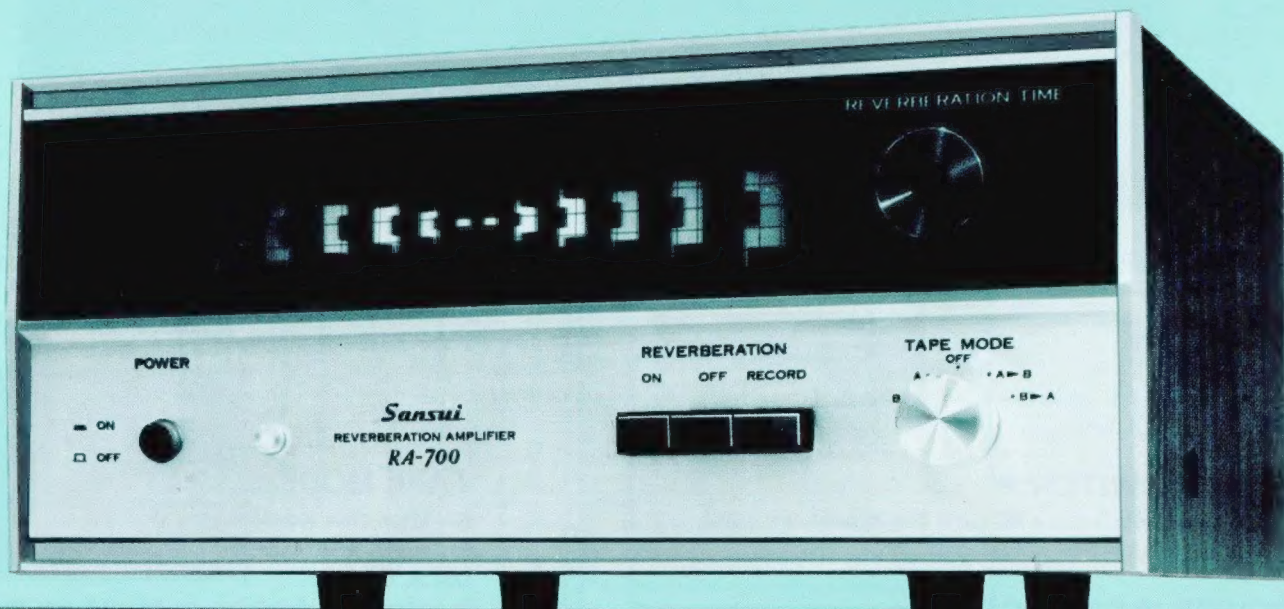
Congratulations on joining the thousands of proud, satisfied owners of quality stereo components from Sansui.

The RA-700 reverberation amplifier is a unique component to add a new thrilling pleasure to your stereo enjoyment. It can provide reverberation effects to all the program sources set up on your existing stereo control amplifier, including the playback from, recording on a tape deck, and dubbing between two tape decks. The continuously controllable reverberation time, multicolored reverberation indicator and other new ideas have been engineered into the RA-700.

This manual has been prepared to guide you in connecting and operating the reverberation amplifier correctly. Please read it carefully before operating the amplifier and retain it for future reference.

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SWITCHES AND CONTROLS.....	3
CONNECTIONS	4
CONNECTIONS/OPERATION	5, 6
HINTS ON USE/ACCESSORIES.....	7, 8
SPECIFICATIONS/BLOCK DIAGRAM.....	9
SCHEMATIC DIAGRAM.....	10



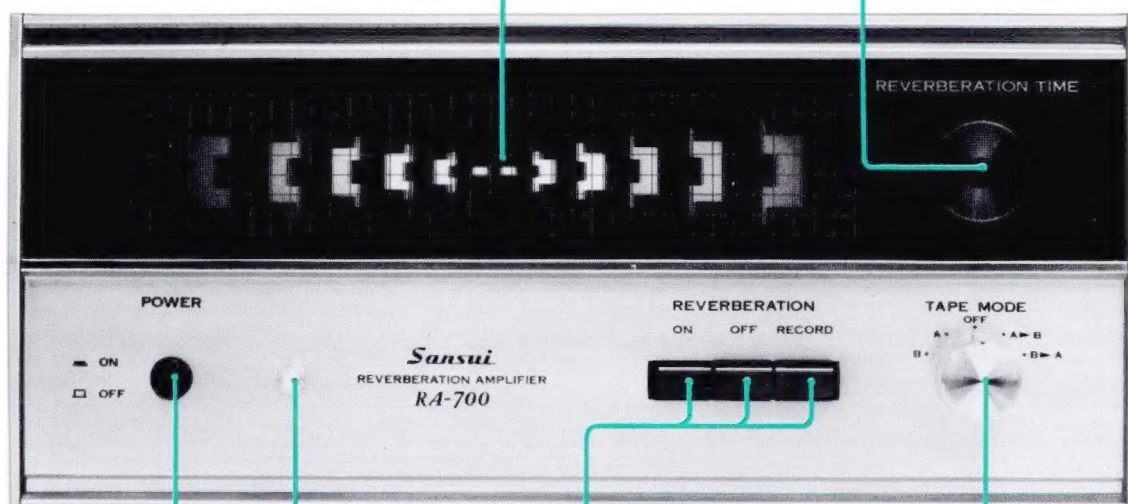
SWITCHES AND CONTROLS

REVERBERATION INDICATOR

The reverberation indicator is illuminated when the Reverberation On or Record button is depressed. The two rainbows, one inverted, draw sharply and distinctly apart as the reverberation time is shortened.

REVERBERATION TIME CONTROL

Use this control to adjust the reverberation time while watching the reverberation indicator. To lengthen the time, turn it clockwise; to shorten the time, turn it counterclockwise.



POWER SWITCH

Push this switch once to turn the power on; push it again to turn the power off.

POWER INDICATOR

The power indicator is lit when the Power switch is turned on. It remains lit while the amplifier is on.

REVERBERATION PUSHBUTTONS

ON—Depress this button to add reverberation to any program source. If it is depressed during the recording process, the recording is made without reverberation but only the sound from the speakers is reverberated.

OFF—Depress this button if you want not to add reverberation during the recording process or while listening to records, radio broadcasts or tapes.

RECORD—Depress this button to add reverberation to the sound of the recording.

TAPE MODE SELECTOR

B—Use this position to record on, or play back through, the tape deck connected to the TAPE DECK B jacks.

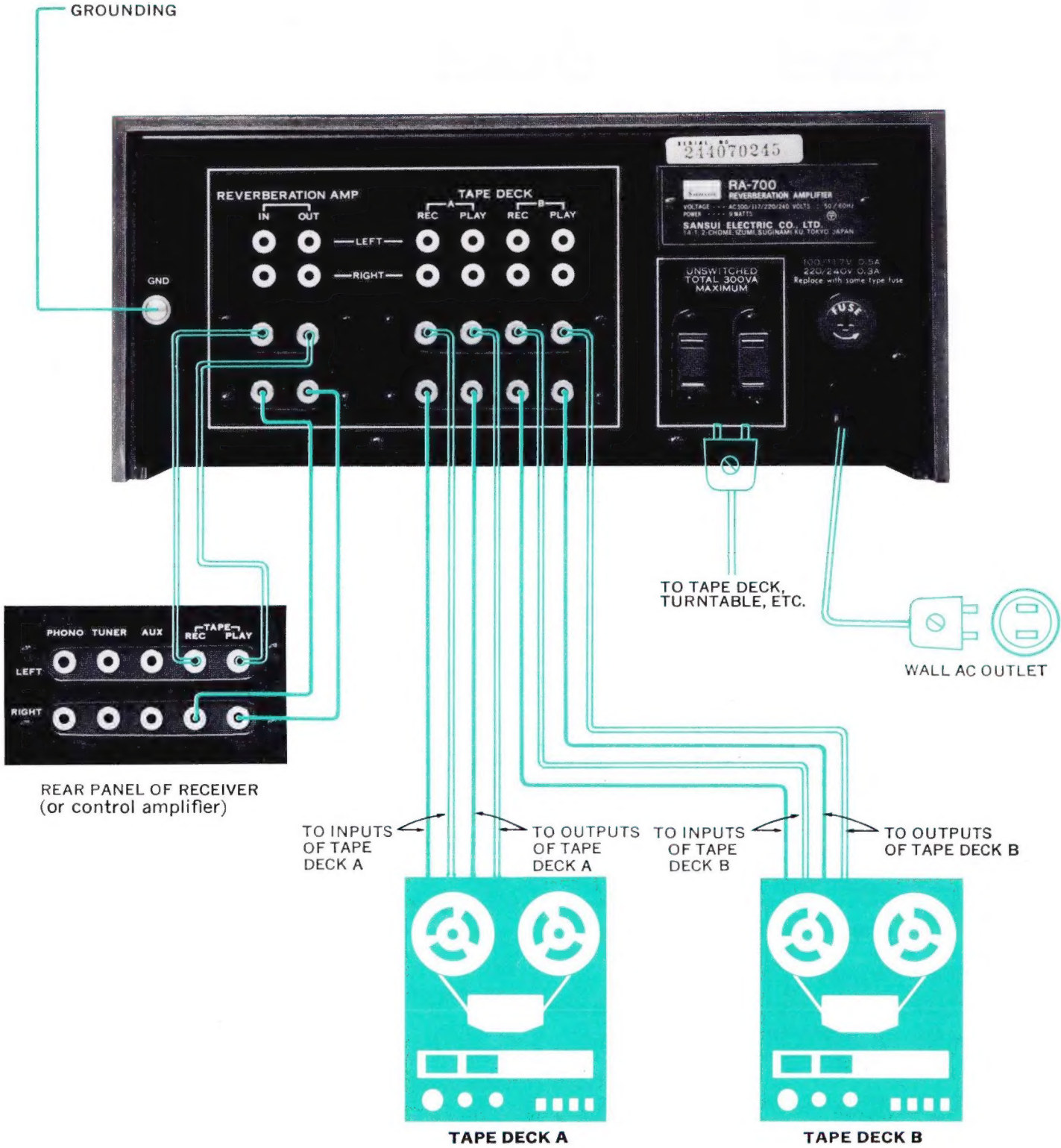
A—Use this position to record on, or play back through, the tape deck connected to the TAPE DECK A jacks.

OFF—Use this position to provide reverberation effects to a program source set up on the receiver (or control amplifier) connected to the RA-700. With the selector switched to this position, the reverberation amplifier is disconnected from the tape deck circuits.

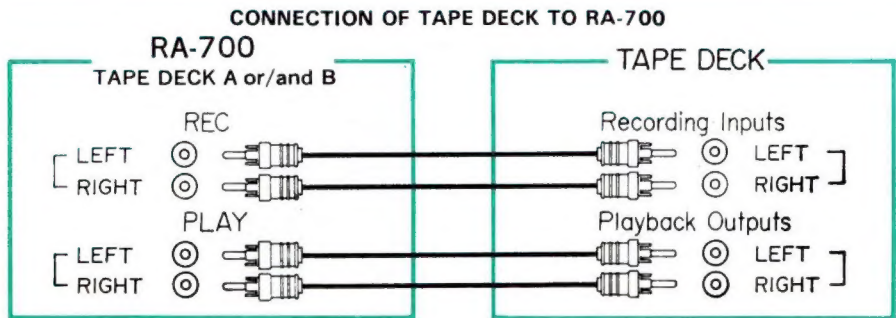
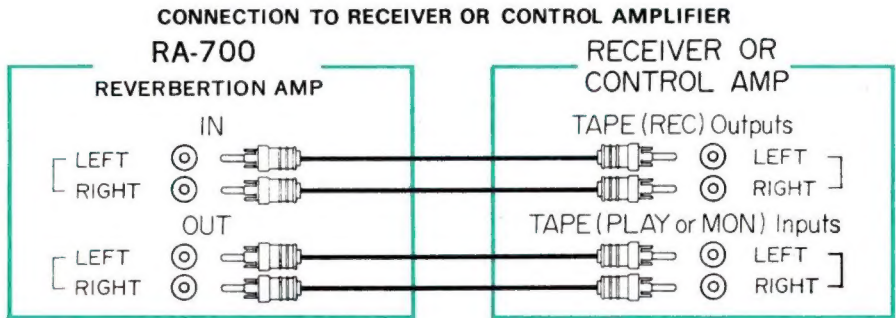
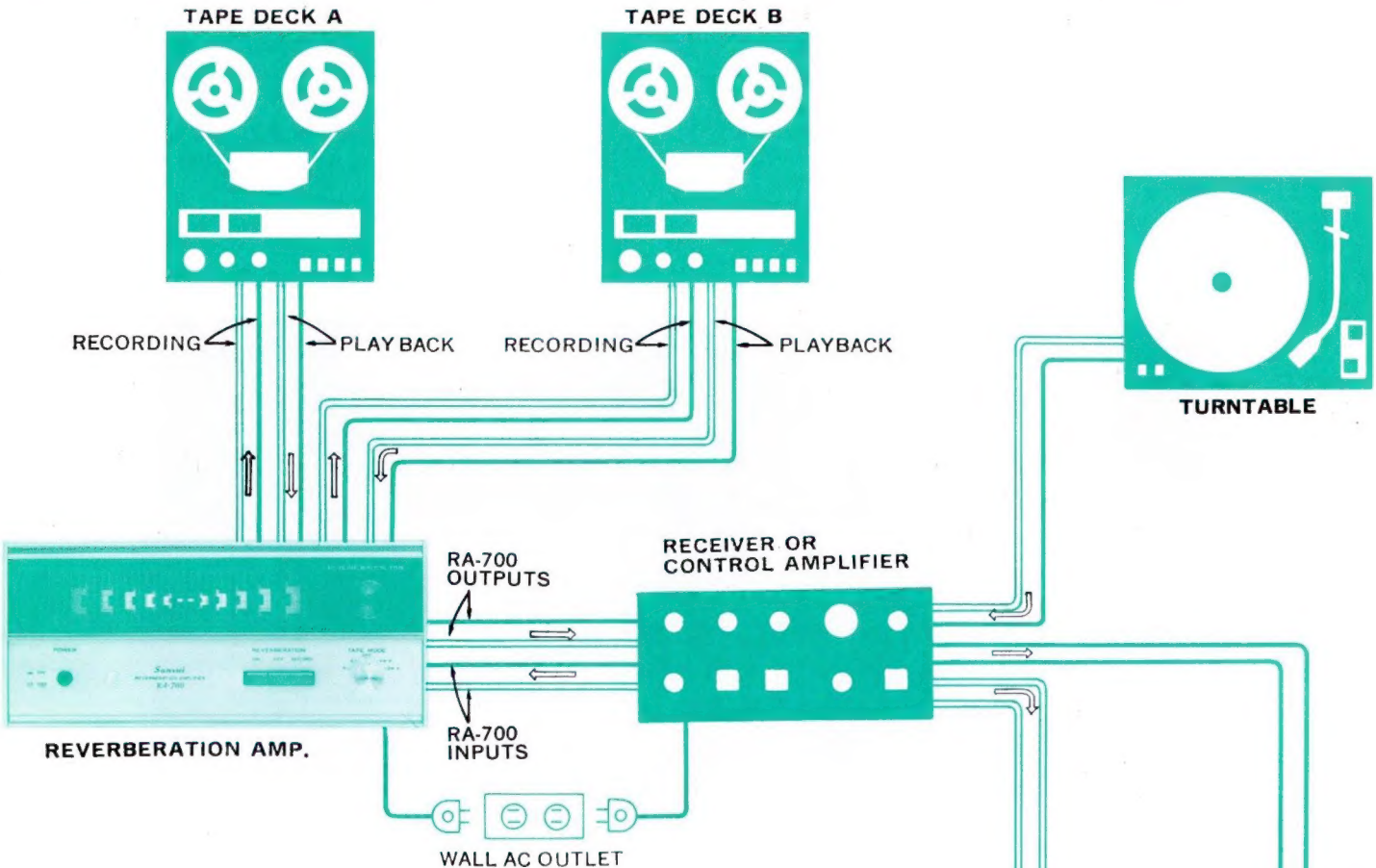
A►B—Use this position to record from the tape deck A to the tape deck B.

B►A—Use this position to record from the tape deck B to the tape deck A.

CONNECTIONS



CONNECTIONS / OPERATION



To Reverberate Sound From Any Program Source—Record Player, Tuner or Microphone—Except Tape Deck

1. Set the Tape Monitor switch on the receiver (or control amplifier) to its PLAYBACK or ON position.
2. Turn the Tape Mode selector on the RA-700 to its OFF position.
3. Depress the Reverberation On button.
4. Adjust the Reverberation Time control to the desired reverberation.

To Reverberate Sound From or Through the Tape Deck

Playback

1. Set the Tape Monitor switch on the receiver (or control amplifier) to its PLAYBACK or ON position.
2. Turn the Tape Mode selector on the RA-700 to A or B depending on which jacks are being used for playback.
3. Depress the Reverberation On button.
4. Operate the tape deck in the playback mode.
5. Adjust the Reverberation Time control to the desired reverberation.

Recording

1. Set the Tape Monitor switch on the receiver (or control amplifier) to its PLAYBACK or ON position.
2. Turn the Tape Mode selector on the RA-700 to A or B depending on which jacks are being used for recording.
3. Depress the Reverberation Record button.
4. Operate the tape deck in the recording mode.
5. Adjust the Reverberation Time control to the desired reverberation.

Notes:

- If the Reverberation On button is depressed during the recording process, the original program can be recorded without reverberation

while the reverberated sound comes from the speakers.

- If the Reverberation Off button is depressed during the recording process, no reverberation is added to the sound of the recording nor to the sound from the speakers.

Dubbing

1. Set the Tape Monitor switch on the receiver (or control amplifier) to its PLAYBACK or ON position.
2. When recording from the tape deck A to the tape deck B, turn the Tape Mode selector to A►B; when recording from the B to the A, turn the selector to B►A.
3. Depress the Reverberation Record button.
4. Operate one tape deck in the playback mode and another in the recording mode.
5. Adjust the Reverberation Time control to the desired reverberation.

Note: If you want *not* to add reverberation during the dubbing process, depress the Reverberation Off button. If the Reverberation On button is depressed during the dubbing process, the original tape can be recorded without reverberation while the reverberated sound comes from the speakers.

Monitoring

If your tape deck has its own preamplifier as well as separate recording and playback heads, you can monitor the tape instantly after the recording is made and while the recording is still in progress. For use with a two-head tape recorder which can pick up a signal before the recording is made, you can listen to it as well. If a two-head tape recorder which does not employ this arrangement is used for recording, not playback, the Tape Monitor switch on the control amplifier (or receiver) should be set to its SOURCE or OFF position, otherwise no sound comes from the speakers.

HINTS ON USE/ACCESSORIES

Connections

Be sure to use shielded cable (four connecting cords supplied) to connect a control amplifier and tape decks to the RA-700. The use of an ordinary twin leadwire may cause hum or noise. Always check to see if the connecting cords are plugged firmly and properly into their corresponding output or input jacks. If the connections are loose or in touch with other parts, the RA-700 will not perform normally, and may produce undesirable noise. If used in such a way for a long time, it will eventually break down.

A.C. Outlets

The two a.c. outlets on the rear panel are live at all times and for plugging in a pair of tape decks. The voltage delivered at these AC outlets is the same as the power supply voltage used. They have a maximum capacity of 300 VA total. Never use them beyond their rated capacity.



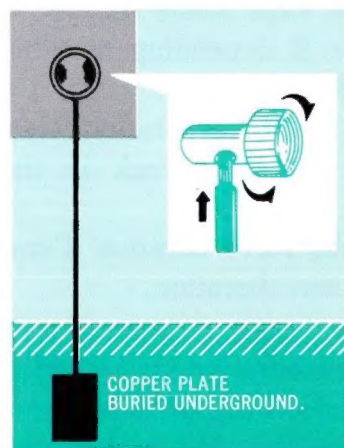
Power Fuse

If the unit remains completely dead when the power is switched on (the POWER indicator fails to light), the power fuse is probably blown. In this case, remove the line cord from its a.c. outlet and replace the fuse after finding and eliminating the trouble that caused the fuse to blow. Use only an identical glass-tubed fuse. For 100–117 volt operation, a 0.5 ampere fuse is required. For 220–240 volt operation, a 0.3 ampere fuse should be used. Never attempt to use a piece of wire or a fuse of a different capacity as a substitute.



Grounding

Connect one end of vinyl or enameled wire to the terminal screw marked GND on the rear of the amplifier, attach a copper plate to the other end and bury it underground. In all cases, grounding is desirable since it allows a better SN ratio to be obtained. To ground an entire audio system, connect the grounding wire of each component to this terminal.

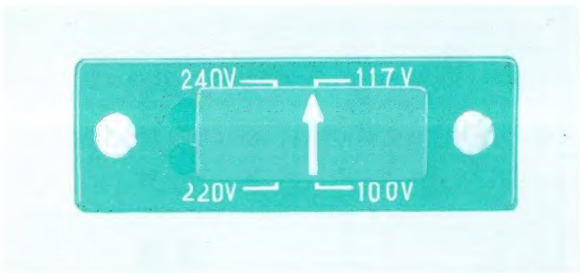


Voltage Adjustment

To reach the voltage selector, remove the two screws from the nameplate on the rear panel and then remove the nameplate. The voltage selector makes it possible to operate the RA-700 at the correct volt in any area. The volt has been pre-adjusted at the factory, but can be easily readjusted as follows:

- 1. Set the arrow on the voltage selector plug to the required volt: 100, 117, 220 or 240 volts.
- 2. The power fuse should also be changed whenever the a.c. line voltage is changed. For 100-117 volt operation, a 0.5 ampere fuse is required. For 220-240 volt operation, the fuse should be changed to a 0.3 ampere fuse.

Note: The voltage selector can be also used to eliminate the trouble caused by the considerable voltaege fluctuation. In this case, it should be set to the peak voltage.



Placement

Your RA-700 may be placed in any position where it is convenient to reach. But we recommend to place it away from the speakers because unnatural reverberation or booming noise may be caused.

ACCESSORIES

1. OPERATING INSTRUCTIONS.....	1
2. OPERATING SHEET	1
3. CONNECTING CORDS WITH PIN-PLUGS	4

Operating Instructions **Stock No. 9208670**

SPECIFICATIONS / BLOCK DIAGRAM

SPECIFICATIONS

RATED OUTPUT VOLTAGE:
300mV (at 1,000Hz, Reverberation time minimum input level 200mV)

MAXIMUM INPUT VOLTAGE:
3V (at 1,000Hz, Reverberation time minimum)

HARMONIC DISTORTION:
Less than 0.2% (at 1,000Hz, Reverberation time minimum output level 300mV)

FREQUENCY RESPONSE:
20 to 30,000Hz ± 2 dB
(at Reverberation time minimum)
20 to 30,000Hz ± 10 dB
(at Reverberation time maximum)

SIGNAL TO NOISE RATIO:
65dB (at output level 300mV)

REVERBERATION TIME:
1.9 to 3.2 second (at 1,000Hz)

INPUT IMPEDANCE:
more than 200k ohms (at 1,000Hz)

INPUT AND OUTPUT JACKS:
INPUT
OUTPUT
TAPE DECK—A
TAPE DECK—B

LOAD IMPEDANCE: 100k ohms

SWITCHES AND CONTROLS:
REVERBERATION MODE:
ON, OFF, RECORD

TAPE MODE:
REC/PLAY—B REC/PLAY—A
A—B DUBBING
B—A DUBBING

POWER REQUIREMENT:
POWER VOLTAGE: 100, 117, 220, 240V
50/60Hz

POWER CONSUMPTION: 9W (rated)

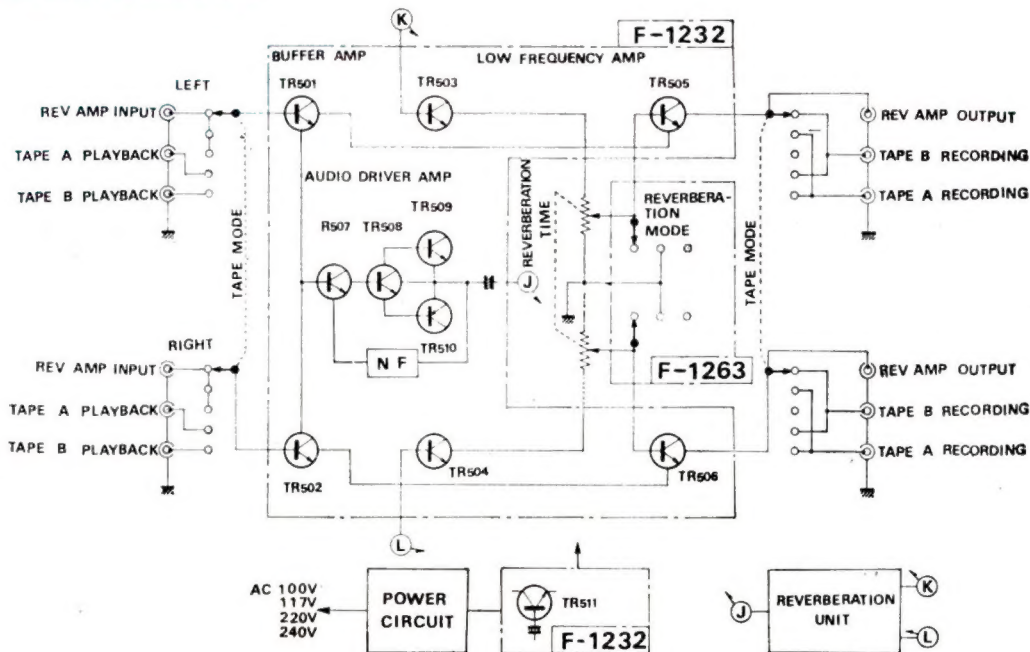
SEMI-CONDUCTORS: Transistors: 11 Diodes: 3

DIMENSIONS: 11¹/₁₆" (280mm) W,
4¹⁵/₁₆" (125mm) H,
10⁷/₁₆" (264mm) D

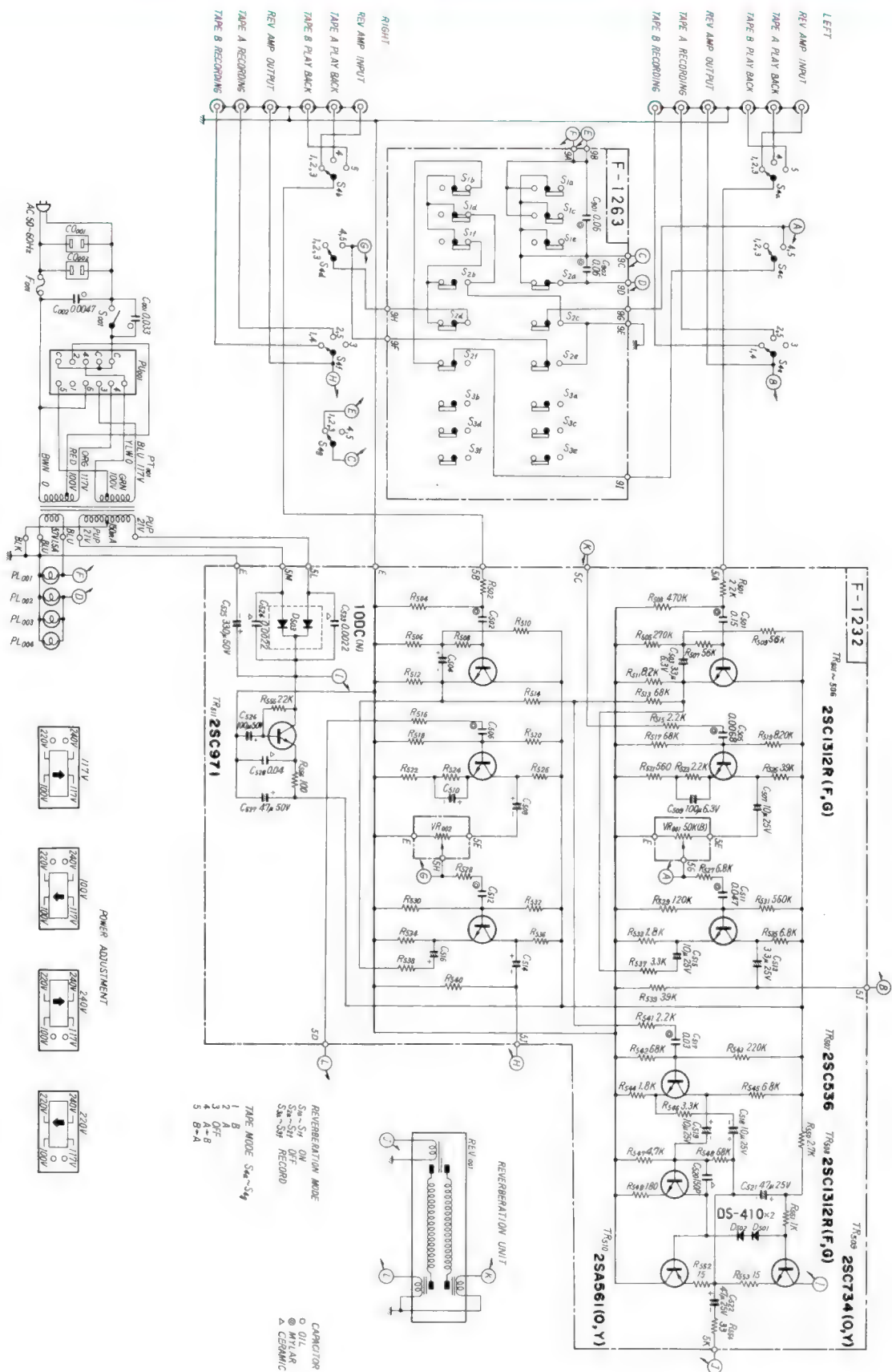
WEIGHT: 9.3 lbs (4.2kg) Net
11.9 lbs (5.4kg) Packed

*Design and specifications subject to change without notice for improvements.

BLOCK DIAGRAM



SCHEMATIC DIAGRAM





SANSUI ELECTRIC CO., LTD.

14-1, 2-chome, Izumi, Suginami-ku, Tokyo 168, Japan.
TELEPHONE: (03) 323-1111/TELEX: 232-2076

Printed in Japan (N4M100)

SANSUI RA-700 OPERATIONS

REVERBERATION INDICATOR

The reverberation indicator is illuminated when the Reverberation On or Record button is depressed. The two rainbows, one inverted, draw sharply and distinctly apart as the reverberation time is shortened.

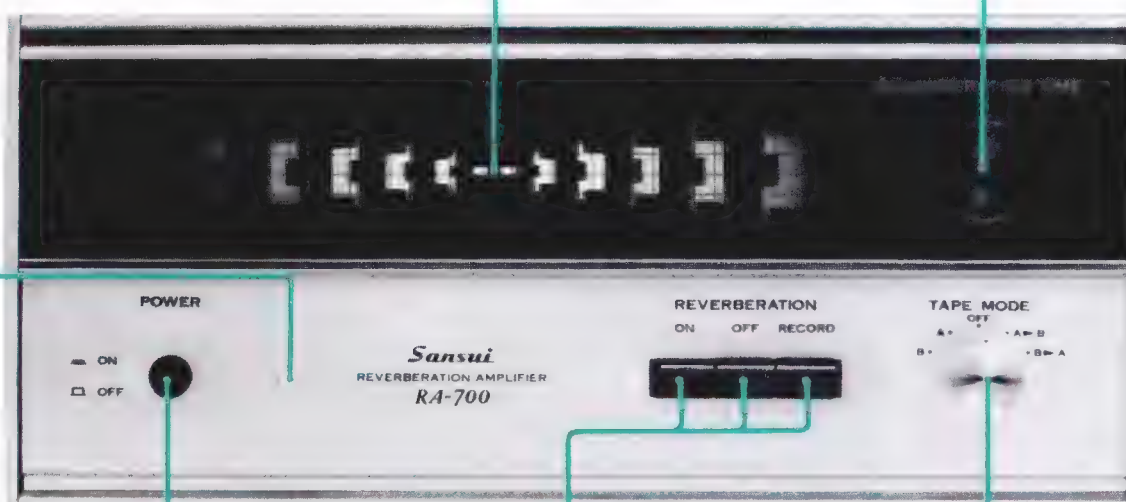
POWER INDICATOR

The power indicator is lit when the Power switch is turned on. It remains lit while the amplifier is on.

CAUTION: Never attempt to lay this sheet on the amp because the heat diffusion effect is largely reduced.

REVERBERATION TIME CONTROL

Use this control to adjust the reverberation time while watching the reverberation indicator. To lengthen the time, turn it clockwise; to shorten the time, turn it counterclockwise.



POWER SWITCH

Push this switch once to turn the power on; push it again to turn the power off.

REVERBERATION PUSHBUTTONS

ON—Depress this button to add reverberation to any program source. If it is depressed during the recording process, the recording is made without reverberation but only the sound from the speakers is reverberated.

OFF—Depress this button if you want not to add reverberation during the recording process or while listening to records, radio broadcasts or tapes.

RECORD—Depress this button to add reverberation to the sound of the recording.

TAPE MODE SELECTOR

B—Use this position to record on, or play back through, the tape deck connected to the TAPE DECK B jacks.

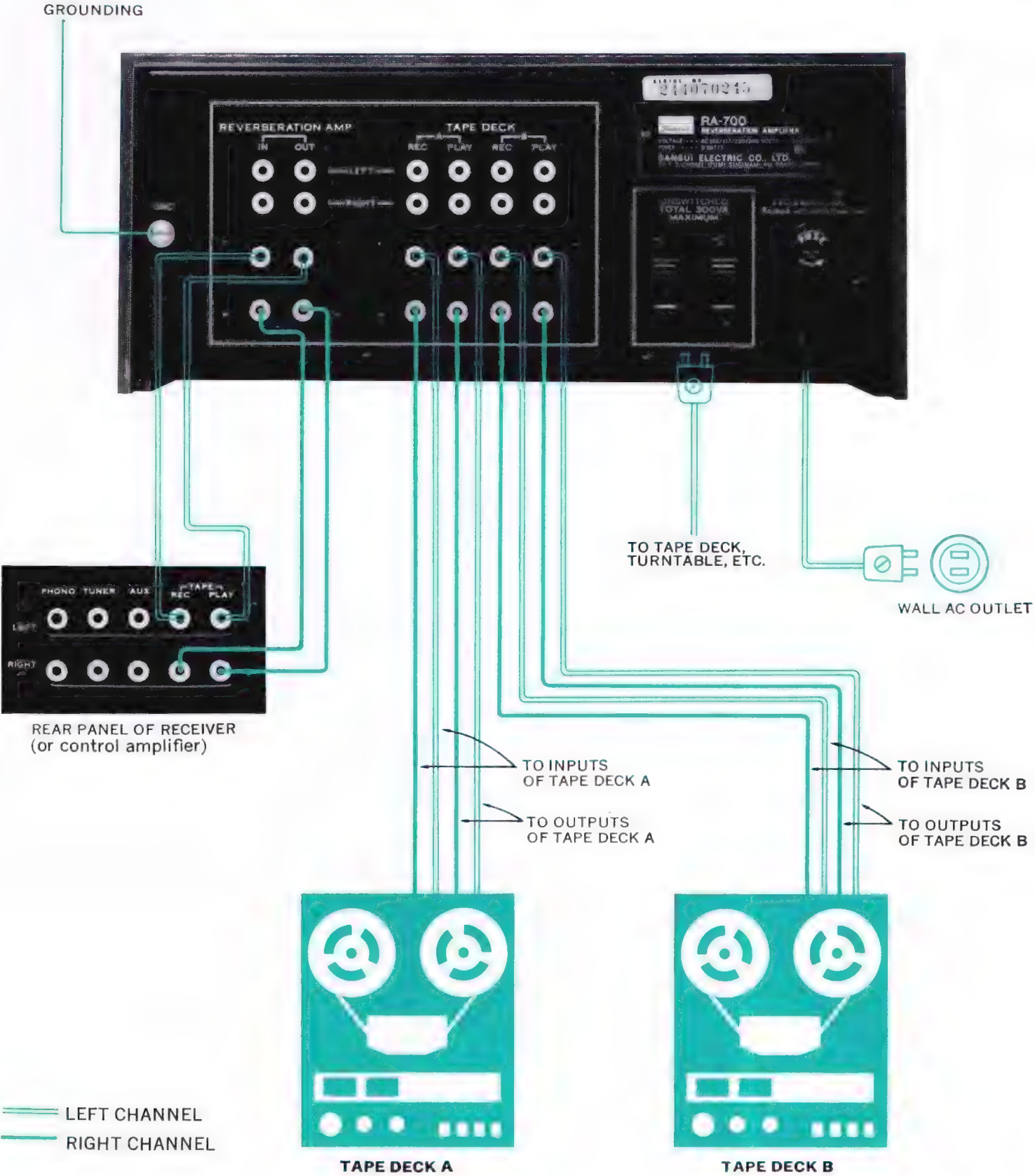
A—Use this position to record on, or play back through, the tape deck connected to the TAPE DECK A jacks.

OFF—Use this position to provide reverberation effects to a program source set up on the receiver (or control amplifier) connected to the RA-700. With the selector switched to this position, the reverberation amplifier is disconnected from the tape deck circuits.

A►B—Use this position to record from the tape deck A to the tape deck B.

B►A—Use this position to record from the tape deck B to the tape deck A.

SANSUI RA-700 CONNECTIONS



Sansui

SANSUI ELECTRIC CO., LTD.

* Design and specifications subject to change without notice for improvements.

14-1, 2-chome, Izumi, Suginami-ku, Tokyo 168, Japan.

TELEPHONE: (03) 323-1111/TELEX: 232-2076

Stock No. 9228670 Printed in Japan (N4M100)



Table 1		Table 2	
Year	Age	Year	Age
1990	10	1990	10
1991	11	1991	11
1992	12	1992	12
1993	13	1993	13
1994	14	1994	14
1995	15	1995	15
1996	16	1996	16
1997	17	1997	17
1998	18	1998	18
1999	19	1999	19
2000	20	2000	20
2001	21	2001	21
2002	22	2002	22
2003	23	2003	23
2004	24	2004	24
2005	25	2005	25
2006	26	2006	26
2007	27	2007	27
2008	28	2008	28
2009	29	2009	29
2010	30	2010	30
2011	31	2011	31
2012	32	2012	32
2013	33	2013	33
2014	34	2014	34
2015	35	2015	35
2016	36	2016	36
2017	37	2017	37
2018	38	2018	38
2019	39	2019	39
2020	40	2020	40
2021	41	2021	41
2022	42	2022	42
2023	43	2023	43
2024	44	2024	44
2025	45	2025	45
2026	46	2026	46
2027	47	2027	47
2028	48	2028	48
2029	49	2029	49
2030	50	2030	50
2031	51	2031	51
2032	52	2032	52
2033	53	2033	53
2034	54	2034	54
2035	55	2035	55
2036	56	2036	56
2037	57	2037	57
2038	58	2038	58
2039	59	2039	59
2040	60	2040	60
2041	61	2041	61
2042	62	2042	62
2043	63	2043	63
2044	64	2044	64
2045	65	2045	65
2046	66	2046	66
2047	67	2047	67
2048	68	2048	68
2049	69	2049	69
2050	70	2050	70
2051	71	2051	71
2052	72	2052	72
2053	73	2053	73
2054	74	2054	74
2055	75	2055	75
2056	76	2056	76
2057	77	2057	77
2058	78	2058	78
2059	79	2059	79
2060	80	2060	80
2061	81	2061	81
2062	82	2062	82
2063	83	2063	83
2064	84	2064	84
2065	85	2065	85
2066	86	2066	86
2067	87	2067	87
2068	88	2068	88
2069	89	2069	89
2070	90	2070	90
2071	91	2071	91
2072	92	2072	92
2073	93	2073	93
2074	94	2074	94
2075	95	2075	95
2076	96	2076	96
2077	97	2077	97
2078	98	2078	98
2079	99	2079	99
2080	100	2080	100

CONCLUSION

The results of this study show that the use of the proposed method can significantly reduce the number of iterations required to find the optimal solution. This is because the method uses a more efficient search algorithm that can quickly eliminate sub-optimal solutions. The results also show that the proposed method can be used to find the optimal solution for a wide range of problems, including those with a large number of variables and constraints. This is because the method is based on a general framework that can be adapted to different problem types. Finally, the results show that the proposed method can be used to find the optimal solution for a wide range of problem sizes, including those with a large number of variables and constraints. This is because the method is based on a general framework that can be adapted to different problem sizes.



Section 1: Introduction

This section introduces the topic and provides background information.

Section 2: Methodology

This section describes the methods used in the study.



Section 3: Results

This section presents the findings of the study.

Section 4: Discussion

This section discusses the implications of the findings.

Section 5: Conclusion

This section summarizes the study and its contributions.

Section 6: References

This section lists the sources cited in the study.

Section 7: Appendix

This section contains supplementary information.

Section 8: Acknowledgments

This section expresses gratitude to those who assisted in the study.



Computer-Aided Design (CAD)



1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000

1000





The following table shows the population of the United States in 1790, 1800, 1810, 1820, 1830, 1840, 1850, 1860, 1870, 1880, 1890, 1900, 1910, 1920, 1930, 1940, 1950, 1960, 1970, 1980, 1990, and 2000.

Year	Population
1790	3,929,214
1800	3,929,214
1810	3,929,214
1820	3,929,214
1830	3,929,214
1840	3,929,214
1850	3,929,214
1860	3,929,214
1870	3,929,214
1880	3,929,214
1890	3,929,214
1900	3,929,214
1910	3,929,214
1920	3,929,214
1930	3,929,214
1940	3,929,214
1950	3,929,214
1960	3,929,214
1970	3,929,214
1980	3,929,214
1990	3,929,214
2000	3,929,214



DASHLET DA-T20 OPERATIONS

REVERSE AND FORWARD

Reverse and forward operation is controlled by the **REVERSE/FORWARD** switch on the front panel. The switch is in the **FORWARD** position when the vehicle is moving forward and in the **REVERSE** position when the vehicle is moving in reverse.

PAUSE AND STOP

The **PAUSE/STOP** switch on the front panel is used to pause or stop the vehicle. Pressing the **PAUSE/STOP** switch will pause the vehicle's movement.

START

The **START** button on the front panel is used to start the vehicle. Pressing the **START** button will start the vehicle's movement.

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